



CACGAGGCCGACGCGCAGCTGGGAGGAAGACAGGACCCTTGACATCTCCATCTGCACAGA  
GGTCCTGGCTGGACCGAGCAGCCTCCTCCTCCTAGGATGACCTCACCTCCAGCTCTCCA  
M T S P S S S P  
GTTTTAGGTTGGAGACATTAGATGGAGGCCAAGAAGATGGCTCTGAGGCGGACAGAGGA  
V F R L E T L D G G Q E D G S E A D R G  
AAGCTGGATTTTGGGAGCGGGCTGCCTCCCATGGAGTCACAGTTCCAGGGCGAGGACCGG  
K L D F G S G L P P M E S Q F Q G E D R  
AAATTCGCCCCCTCAGATAAGAGTCAACCTCAACTACCGAAAGGGAACAGGTGCCAGTCAG  
K F A P Q I R V N L N Y R K G T G A S Q  
CCGGATCCAAACCGATTTGACCGAGATCGGCTCTTCAATGCGGTCTCCCGGGGTGTCCCC  
P D P N R F D R D R L F N A V S R G V P  
GAGGATCTGGCTGGACTTCCAGAGTACCTGAGCAAGACCAGCAAGTACCTCACCGACTCG  
E D L A G L P E Y L S K T S K Y L T D S  
GAATACACAGAGGGCTCCACAGGTAAGACGTGCCTGATGAAGGCTGTGCTGAACCTTAAG  
E Y T E G S T G K T C L M K A V L N L K  
GACGGAGTCAATGCCTGCATTCTGCCACTGCTGCAGATCGACAGGGACTCTGGCAATCCT  
D G V N A C I L P L L Q I D R D S G N P  
CAGCCCCTGGTAAATGCCCAGTGCACAGATGACTATTACCGAGGCCACAGCGCTCTGCAC  
Q P L V N A Q C T D D Y Y R G H S A L H  
ATCGCCATTGAGAAGAGGAGTCTGCAGTGTGTGAAGCTCCTGGTGGAGAATGGGGCCAAT  
I A I E K R S L Q C V K L L V E N G A N  
GTGCATGCCCCGGGCTGCGGCCGCTTCTTCCAGAAGGGCCAAGGGACTTGCTTTTATTT  
V H A R A C G R F F Q K G Q G T C F Y F  
GGTGAGCTACCCCTCTCTTTGGCCGCTTGACCAAGCAGTGGGATGTGGTAAGCTACCTC  
G E L P L S L A A C T K Q W D V V S Y L  
CTGGAGAACCCACACCAGCCCCGCCAGCCTGCAGGCCACTGACTCCCAGGGCAACACAGTC  
L E N P H Q P A S L Q A T D S Q G N T V  
CTGCATGCCCTAGTGATGATCTCGGACAACCTCAGCTGAGAACATTGCACTGGTGACCAGC  
L H A L V M I S D N S A E N I A L V T S  
ATGTATGATGGGCTCCTCCAAGCTGGGGCCCGCCTCTGCCCTACCGTGCAGCTTGAGGAC  
M Y D G L L Q A G A R L C P T V Q L E D  
ATCCGCAACCTGCAGGATCTCACGCCTCTGAAGCTGGCCGCCAAGGAGGGCAAGATCGAG  
I R N L Q D L T P L K L A A K E G K I E  
ATTTTCAGGCACATCCTGCAGCGGGAGTTTTAGGACTGAGCCACCTTTCCCGAAAGTTC  
I F R H I L Q R E F S G L S H L S R K F  
ACCGAGTGGTGCTATGGGCCTGTCCGGGTGTGCTGTATGACCTGGCTTCTGTGGACAGC  
T E W C Y G P V R V S L Y D L A S V D S  
TGTGAGGAGAACTCAGTGCTGGAGATCATTGCCTTTTATTGCAAGAGCCCCGCACCGACAC  
C E E N S V L E I I A F H C K S P H R H  
CGAATGGTCGTTTTGGAGCCCCTGAACAACTGCTGCAGGCGAAATGGGATCTGCTCATC  
R M V V L E P L N K L L Q A K W D L L I  
CCCAAGTTCTTCTTAAACTTCCTGTGTAATCTGATCTACATGTTTCATCTTACCCTGTT

FIG. 1A



P K F F L N F L C N L I Y M F I F T A V  
GCCTACCATCAGCCTACCCTGAAGAAGCAGGCCGCCCTCACCTGAAAGCGGAGGTTGGA  
A Y H Q P T L K K Q A A P H L K A E V G  
AACTCCATGCTGCTGACGGGGCCACATCCTTATCCTGCTAGGGGGGATCTACCTCCTCGTG  
N S M L L T G H I L I L L G G I Y L L V  
GGCCAGCTGTGGTACTTCTGGCGGCGCCACGTGTTTCATCTGGATCTCGTTCATAGACAGC  
G Q L W Y F W R R H V F I W I S F I D S  
TACTTTGAAATCCTCTTCCTGTTCCAGGCCCTGCTCACAGTGGTGTCCCAGGTGCTGTGT  
Y F E I L F L F Q A L L T V V S Q V L C  
TTCCTGGCCATCGAGTGGTACCTGCCCCCTGCTTGTGTCTGCGCTGGTGCTGGGCTGGCTG  
F L A I E W Y L P L L V S A L V L G W L  
AACCTGCTTTACTATACACGTGGCTTCCAGCACACAGGCATCTACAGTGTGATGATCCAG  
N L L Y Y T R G F Q H T G I Y S V M I Q  
AAGGTCATCCTGCGGGACCTGCTGCGCTTCTTCTGATCTACTTAGTCTTCTTTTCGGC  
K V I L R D L L R F L L I Y L V F L F G  
TTCGCTGTAGCCCTGGTGAGCCTGAGCCAGGAGGCTTGGCGCCCCGAAGCTCCTACAGGC  
F A V A L V S L S Q E A W R P E A P T G  
CCCAATGCCACAGAGTCAGTGCAGCCCATGGAGGGACAGGAGGACGAGGGCAACGGGGCC  
P N A T E S V Q P M E G Q E D E G N G A  
CAGTACAGGGGTATCCTGGAAGCCTCCTTGGAGCTCTTCAAATTCACCATCGGCATGGGC  
Q Y R G I L E A S L E L F K F T I G M G  
GAGCTGGCCTTCCAGGAGCAGCTGCACTTCCGCGGCATGGTGCTGCTGCTGCTGCTGGCC  
E L A F Q E Q L H F R G M V L L L L L A  
TACGTGCTGCTCACCTACATCCTGCTGCTCAACATGCTCATCGCCCTCATGAGCGAGACC  
Y V L L T Y I L L L N M L I A L M S E T  
GTCAACAGTGTGCGCCACTGACAGCTGGAGCATCTGGAAGCTGCAGAAAGCCATCTCTGTC  
V N S V A T D S W S I W K L Q K A I S V  
CTGGAGATGGAGAATGGCTATTGGTGGTGCAGGAAGAAGCAGCGGGCAGGTGTGATGCTG  
L E M E N G Y W W C R K K Q R A G V M L  
ACCGTTGGCACTAAGCCAGATGGCAGCCCGGATGAGCGCTGGTGCTTCAGGGTGGAGGAG  
T V G T K P D G S P D E R W C F R V E E  
GTGAACTGGGCTTCATGGGAGCAGACGCTGCCTACGCTGTGTGAGGACCCGTCAGGGGCA  
V N W A S W E Q T L P T L C E D P S G A  
GGTGTCCCTCGAACTCTCGAGAACCCTGTCCTGGCTTCCCCTCCCAAGGAGGATGAGGAT  
G V P R T L E N P V L A S P P K E D E D  
GGTGCCTCTGAGGAAAACTATGTGCCCGTCCAGCTCCTCCAGTCCAACTGATGGCCCAGA  
G A S E E N Y V P V Q L L Q S N \*  
TGCAGCAGGAGGCCAGAGGACAGAGCAGAGGATCTTTCCAACCACATCTGCTGGCTCTGG  
GGTCCCAGT

FIG. 1B

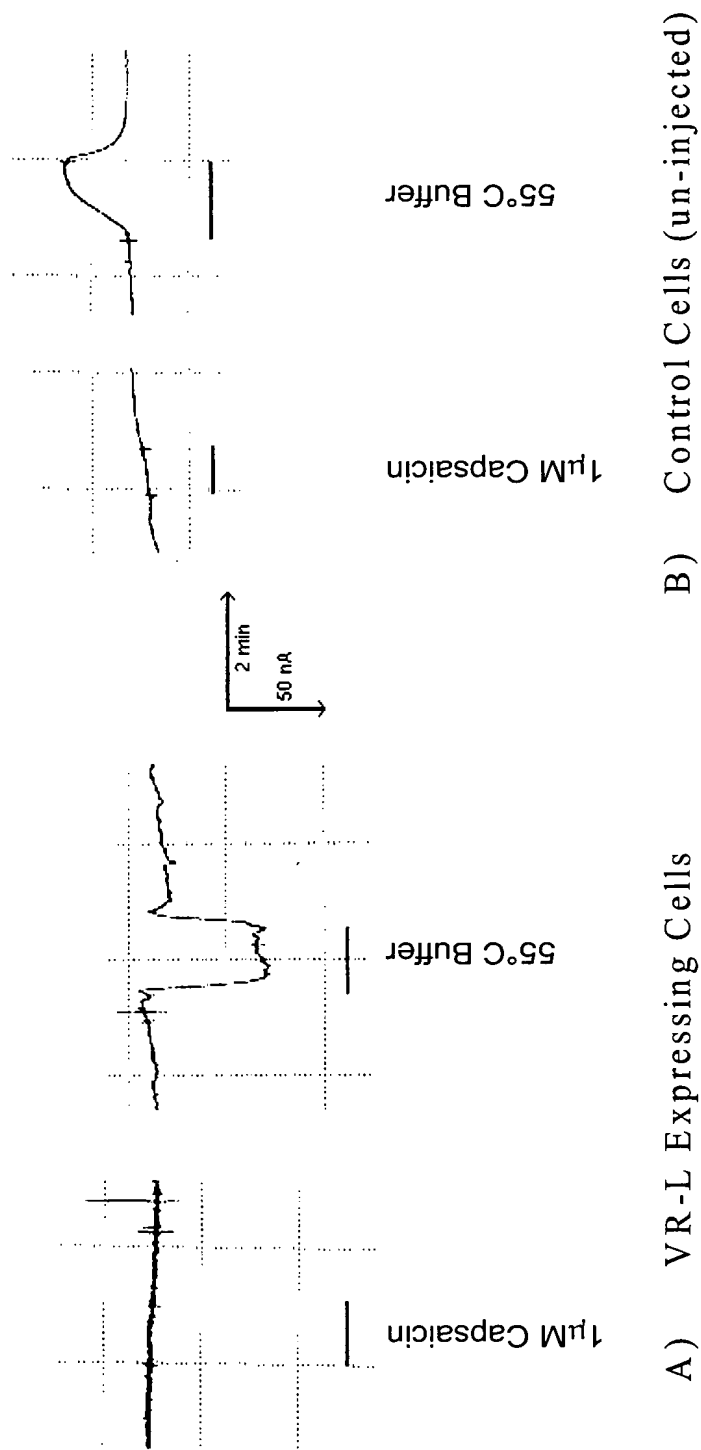


FIG. 2

Appl. No. 09/445,614  
Amdt. Dated Dec. 22, 2003  
Reply to Office Action of Sept. 22, 2003  
Replacement Sheet



104F	CAG	GCC	CGG	GCA	TGC	ACA	TTG
105T	CCA	GGG	CGA	GGA	CCG	GAA	ATT
108F	GAC	AGC	TGG	AGC	ATC	TGG	AAG
109F	GAC	AGC	TGG	AGC	ATC	TGG	AAG
110T	CTT	CCA	GAT	GCT	CCA	GCT	GTC
111T	TTT	GCC	ACC	AGA	ATT	CAC	TGG
114F	CTC	TCT	TTG	GCC	GCT	TGC	ACC
115T	CCA	GCA	CTG	AGT	TCT	CCT	CAC
118F	GCC	CTA	CCG	TGC	AGC	TTG	AGG
119T	TGC	CCC	ACG	AGG	AGG	TAG	ATC
120F	ATG	GCG	ATG	TGC	AGA	GCG	CTG
121T	AGA	GTC	AAC	CTC	AAA	CTA	CCG
126F	GAG	CTT	CTC	CCT	GCG	GTC	AAG
127T	AAG	GCT	GCT	GAA	AAA	GCA	CTG
189F	GCT	GGG	CTG	GCT	GAA	CCT	GC
190T	GAG	GGC	AAT	GAG	CAT	GTT	G

FIG. 3